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ABSTRACT

This report reviews resource reallocation in five research universities. Resource reallocation as a careful program-by-program analysis of expenditures, emphasizing possible cost reductions, cost increases which might be postponed or even eliminated, and essential service costs which had to be maintained. University response to resource reallocation is described according to machinery, the need for information, planning, participation, the scope of resource reallocations, medical education and teaching hospital, public relations, income in relation to expenditures, instructional cost, undergraduate student aid, graduate student aid, the cost of graduate education, other economics, and income. (MJM)

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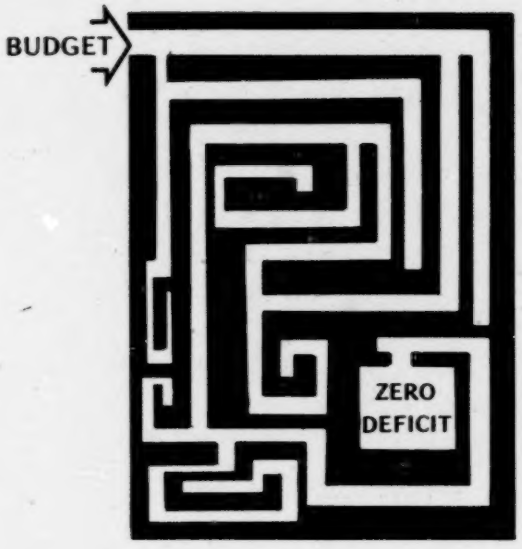

a study
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BY

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1424 Sixteenth St., N.W.
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June, 1973

PREFACE

The Carnegie Commission on Higher Education declared in its June, 1972, report, *The More Effective Use of Resources*, that a more effective use of resources is imperative for colleges and universities. Apart from its own analysis of how the "new depression" in higher education had come about and its own recommendations about how to use resources more effectively, the Commission referred to five major research universities which had accomplished a good deal in the way of resource utilization, more than the Commission was actually advocating.

It is, perhaps, worthwhile to look more closely at this recent experience. It may prove useful to make the actual issues involved as specific as possible, to know more about the actual process and the matters to be resolved when resource reallocation is undertaken within a university. In addition, these experiences may indicate the extent to which common procedures and common substantive decisions might be involved. Every university is necessarily unique, with its own environment, its own traditions, its own circumstances. But within this context of unique characteristics might there be some common experiences as well?

In undertaking this analysis, I have had the full cooperation of officials of five research universities, who have made available to me various documents about their experience. Although much of this material previously was released for general review upon the individual campuses and in some instances quite widely off-campus, I have decided not to identify the universities. The essential need, as I see it, is to identify problem areas, not to commend or to criticize a particular university.

The five universities are not the same ones cited by the Carnegie Commission. There is some overlap, but there is also some difference. These different experiences also deserve commendation; some simply occurred after the Carnegie Commission report was written.

The definition of a research university, as it is construed in this analysis, conforms to the guidelines set forth in the Carnegie Commission categorization of higher education institutions. Indeed, all five come within the category of "Research University I," the top fifty universities in the United States in terms of the volume of research activity funded by the federal government and in the number of doctoral degrees awarded. Common experiences are more likely to occur among institutions of similar missions and complexities than among institutions which are quite dissimilar in their missions and structure. Moreover, because of the changing interest of the

federal government in funding extensive research programs for universities, these institutions have confronted severe budgetary constraints.

A few words may also be needed about the meaning of the term "resource reallocation." For some fifteen years between 1953 and 1968 or 1969, colleges and universities in this country generally practiced incremental budgeting, or incremental allocation of resources. Each fiscal year, a college or university anticipated increased income available to it with which to support its various activities of instruction, research, public service, auxiliary service, and student aid. This increased income was provided by state governments (primarily for instruction by public colleges and universities), by the federal government (primarily for research and student aid), by increased enrollments, by increased charges to students, and by increases in philanthropy. The task of management within a college or university was simply to allocate this incremental income in some kind of proportion among instructional programs and other programs of the institution.

Around 1970, this incremental allocation of resources came to a resounding halt. Enrollments suddenly began to decline or to stabilize. Governmental income ceased to expand. Resistance to student fee increases appeared. Philanthropy, for a variety of reasons, became less certain. College and university management suddenly had to switch from the incremental allocation of resources to a *reallocation* of resources. As one university document explained, the university was in transition from incremental budgeting to total budgeting in an environment of scarcity and uncertainty.

Reallocation usually meant one of two things. Past trends in annual increases in expenditures would have to be halted in order to adjust to reduced increases in income. Or, in some instances, reallocation meant a necessary adjustment in expenditure patterns to fit a zero growth in income.

When income growth halts, one possible administrative response is to hold every activity and every staff person in place. But, in some instances, the decision to "hold-fast" came too late, came after there were operating deficits in the gap between expenditures and income. To balance budgets, some reduction in expenditures was essential. In other instances, institutions were not content simply to stand still. Officials and others began to ask whether or not it might be desirable to make changes in the scope of activities or in the procedures or technology (productivity) of operations.

Whenever the problem of reducing expenditures or reducing the rate of growth in expenditures occurs, management may consider resource reallocation. It is in this sense that the term has been used in this discussion.

John D. Millett

RESOURCE REALLOCATION

IN

RESEARCH UNIVERSITIES

Why Resource Reallocation?

In the four private research universities, the explanation for resource reallocation was very simple. Each one had a current operating budget deficit in 1970-71. The problem was not one of merely cutting current expenditures, but of preventing the deficit from growing in magnitude in succeeding years and of taking effective steps to control the internal forces which had created the deficit.

The problem for the public university arose by the appropriation action of the state legislature in 1971. As the academic year 1971-72 got under way, the university found that, although the biennial appropriation for 1971-1973 had been increased by the general assembly, all of the increase was earmarked for non-instructional programs. Not one additional dollar was available from state tax resources to be used for increasing instructional expenditures.

The general assembly appropriation came after the beginning of the fiscal year; thus, the state university immediately had to take drastic action. The board of trustees, upon the advice of the president, ordered a six percent across-the-board reduction in the operating budget of every academic department and of other academic units for the year 1971-72 and a ten percent cut in the operating budget of all support units of the university. It quickly became apparent that a "meat-ax" approach to across-the-board reductions demanded heavier sacrifices from the small unit than from the large unit and created inequities in sacrifice.

The resource reallocation problem of one private university could also be simply stated. That problem was to reduce an incremental increase in the annual operating costs of the university from a rate of twelve percent per year to six percent per year. As a goal, such a reduction in incremental budgeting sounds fairly simple. In practice, the university found that it could plan such a reduction only over a period of time. This particular university gave itself five fiscal years in which to achieve a balanced operating budget. The deficits of the intervening years were compensated for by utilizing endowment funds.

Some of the private universities considered an across-the-board reduction. They rejected this approach, however, in order to avoid the experience of the state university. Eventually, all five universities adopted the same kind of procedure: a careful program-by-program analysis of expenditures, emphasizing possible cost reductions, cost increases which might be postponed or even eliminated, and essential service costs which had to be maintained. This was a process of resource reallocation. It meant looking not just at incremental costs; it meant looking at all costs.

All five universities found it desirable to give some special label to their resource reallocation process. In one instance, it was called simply a budget adjustment program; in another, it was labelled the resource allocation program; a third new process was called the retrenchment and reallocation program.

Machinery

How shall a university develop and organize a resource reallocation effort? All five universities decided that the traditional machinery of budget preparation and review was inadequate to the task at hand. Although they did not lack confidence in budget personnel and processes as such, they recognized two needs which could only be met, it was decided, by new organizational arrangements. First, it was necessary to dramatize the budget procedure, to give the total process a new attention and new emphasis. It was also important to involve academic management far more extensively in the whole budget process. This meant consultation on a large scale with faculty members and students.

One university created two new offices, an academic planning office, under an associate provost, and a management studies office, under the vice president for business and finance. Both moves heralded the new and more intensive attention henceforth to be given to all parts of the university budget, with emphasis upon careful planning of all academic activities and improved performance of all support or service activities.

In another university, the president found it desirable to create a new unit under his own immediate direction, the office of budget and information service. The president assumed direct responsibility for this office because he wished to stress that resource reallocation would be considered equally for the academic and support units of the university.

At one university, the problem of resource reallocation arose just at the time a whole new machinery of governance was developing. In the aftermath of student disturbances in 1968 and 1969, a considerable amount of time and energy had been devoted to discussion of a new structure of authority in the university below the level of the board of trustees. As a consequence, a university community council was created, bringing together representatives of the faculty, student body, operating staff, and administrative staff. A number of committees were established, including a priorities committee on resource allocation. This priorities committee consisted of six faculty members, six student members (four under-

graduate and two graduate students), three administrative officers, and one staff member. Three administrative officers, the provost (who was chairman), the vice president for financial affairs, and the dean of the faculty served *ex officio*. Just as the committee was organized, the budget crisis of the university was thrown into its lap.

Two universities decided to approach their situation on an *ad hoc* basis, in preference to the establishment of any new administrative machinery. In one instance, the president decided to make resource reallocation his own personal assignment on behalf of the board of trustees. For this purpose, he utilized all existing machinery: his personal staff, his cabinet, the vice president for business and finance, the council of deans, and the faculty consultative committee. In addition, the president carried on extensive additional consultation with department chairmen, senior faculty members, various student groups, and individual trustees. The president allowed himself two years in which to prepare a balanced budget for presentation to the board of trustees.

In another instance, the university president decided to create an *ad hoc* committee on the financial crisis. The committee consisted of five deans of component colleges of the university, along with the vice president for administration. There were no faculty or student members, although the committee did meet with various faculty and student representatives. Because, for several reasons, there was considerable urgency in the task to be performed, the president decided to assign this task to academic administrators who seemed to stand halfway between the central administrative staff and the faculty groupings. This particular arrangement proved to be successful.

The Need for Information

In four out of the five universities studied, a common situation quickly was manifest. When the need for a thorough analysis of the existing resource allocation within the university was recognized as a desirable first step in resource reallocation, the university officials and the committees involved discovered that all the information they wanted was not readily available. And a good deal of time had to be spent in determining what information the committee members and administrators wanted.

Without adequate information, there cannot be a resource reallocation process. Universities do have extensive information available for their administrators. The common difficulties seem to be that these data were scattered among various offices, that little attention had ever been paid to the interrelationships of available data, and that little systematic effort had been made to relate statistical data to budget data. As a result, the research universities found it necessary to collect and analyze extensive data in order to improve their customary budget procedures.

Another deficiency was evident in the lack of budgeting data in relation to instructional program objectives. The budget for each instructional department was, of course, well known, as was the staffing pattern of each

department. Data were available to show the course registrations of each department, the average instructional workload per department, and the average cost per course or per student credit hour. What was lacking was any clear-cut information about the breakdown or distribution of these costs by undergraduate versus graduate instruction, lower division versus upper division instruction, master's degree versus doctor's degree instruction. These kinds of data were virtually nonexistent, unless the university had established separate departments or separate faculties for undergraduate and graduate instruction.

As soon as administrators and committees determined what particular aspects of internal operation to examine, the next step was to find as much factual information as possible. In four of the five instances studied here, some special organizational arrangements were made to collect, analyze, and report statistical data. Significantly, one university actually created a new office, the office of budgeting and information service. The designation purposefully linked information service on the one hand and budget decision-making on the other.

One university made a systematic effort to establish a new information collection and analysis procedure. Given the formal designation of the Course and Faculty Schedule Information System (CAFSIS), this information system was concerned with three major areas of university activity: (1) instructional courses (organization, enrollments, hours, and staffing); (2) instructional space and scheduling (the utilization of instructional space and the distribution of courses and students by time periods); and (3) faculty time (the allocation of faculty time to instructional activity). The system was designed to create a data file which would be uniform for all faculty departments and which could easily be related to budget determinations.

The process of data collection was standardized by means of common forms to be filled out by each department four weeks after the beginning of the semester. One form reported all courses offered, the enrollment, the number of sections, the time schedule, the faculty staffing, and the faculty contact hours per week per course. A second form provided data about student advising and tutoring; a third form provided data about faculty activity other than instruction and research. These data were tabulated, summarized, and made available in computer print-outs. The result was an array of data, previously unavailable, about the instructional activity of the university.

Planning

As one reads the record on resource reallocation in these major research universities, questions about the state of academic planning arise. Rightly or wrongly, one gains the impression that academic planning was largely absent, at least in terms of a careful projection of long-range objectives and a careful assessment of short-term programs.

Any academic planning that did occur seems to have been practiced primarily at the departmental level or at the professional school level.

Instructional personnel were concerned with obtaining faculty colleagues who would be outstanding in their scholarly achievement or promise, dedicated to the advancement of knowledge in their specialized field of interest, competent to carry on research activity, likely to attract research grants and graduate students, and certain to advance the scholarly reputation and standing of the department. It apparently was assumed without too much concern that federal government agencies or some other source could be found ready and willing to finance whatever the cost of all this effort might be.

Administrative personnel in the central management of the university were usually consulted only to the extent necessary to enlist support for research grant applications or to make certain that departmental plans would not be suddenly hampered by administration questioning. Whether or not departmental plans fitted institutional plans, whether or not there might be objectives other than research reputation, whether or not the financial resources would be available indefinitely to support departmental plans—these issues seem to have been largely ignored. Academic administration was not geared to market analysis; it was geared to undertake whatever tasks faculty members were interested in pursuing and for which funds could be found. And presidents and their colleagues were expected simply to find the money faculty members wanted, not to suggest that faculty wants were outrunning institutional income.

Resource reallocation brought with it a new interest in and concern for long-range planning. And, as of 1971, the computer was available as a tool with which to project trends and to introduce variables into planning calculations in ways never before available for administration and faculty planning. The ten-year projection of expenditures and of income became fashionable once again in the research university.

In reviewing their early efforts at resource reallocation, two of the universities gave considerable thought to the whole subject of planning-programming-budgeting as a system, or as an integrated process. In each instance the university carefully reviewed available information about PPBS to determine the extent to which these techniques of economic analysis and management decision-making might be applicable in the university setting. Each reached somewhat different conclusions.

One study reported that PPBS was little more than the application of common sense to the process of allocating limited resources among competing ends. The process involved: (1) defining the objectives of the organization as clearly and precisely as possible; (2) determining what is currently being accomplished for the money spent; (3) reviewing alternative methods and their costs for achieving defined objectives; and (4) establishing a systematic procedure for bringing all this information together when budget and other decisions must be made.

As the university proceeded with its consideration of PPBS, it decided to set down some common working definitions. "Planning" was defined as the analysis, discussion, and decision-making on resource allocation issues having implications for several years in advance. Cost-effectiveness and

cost-benefit analyses were a part of this planning. "Programming" was defined as the recording of planning decisions in a long-range planning document. This document would be organized by program or output-related categories and would indicate the costs involved in carrying out the programs. These costs would be described in terms of dollars and personnel, plant, and equipment resources. Programming thus represented an approved plan. "Budgeting" was defined as the generation of detailed requests for the resources to perform the next year's increment of an approved plan, the review of those requests for consistency with the long-range plan, the approval of budgets, and control of the budget as approved.

The first step in implementing a planning-programming-budgeting system at this university was to establish program categories. It quickly became necessary to delineate several levels: graduate programs, Ph.D. programs, Ph.D. programs by field (arts and sciences, engineering, business administration), and Ph.D. programs by discipline. In addition, it was necessary to develop interrelationships among these categories, in terms of interdisciplinary study and interdisciplinary support (mathematics in relation to the physical sciences, biological sciences, and behavioral sciences). And it was found that the establishment of program categories did not mean the abandonment of the traditional budgeting categories of departments and objects of expenditure.

Establishment of program categories was useful as a first step, but it produced no miracles. Data about the costs of a Ph.D. program in economics in comparison with the cost of a Ph.D. program in chemistry did not necessarily suggest any judgment about the value or priority of the two programs. There is no market value or price for determining the utility of the two outputs. Higher education is a social activity, and determining the social utility of various social endeavors is not an exercise in rational choice or logic; it is an exercise in value judgment; it is a political choice. Does society need more education or better health; does society need improved housing or less atmospheric pollution; does society need more capital formation or a larger and different distribution of personal income?

At the same time, this university found that it did help to know the costs of different instructional programs. Often the issue was not the relative value of the respective outputs but the relative costs of different methods or technologies involved in the production of those outputs. PPBS, the university decided, was not an exact science; it was an art form.

If a university is to attempt PPBS, the president of the university and his or her principal academic and financial associates must be fully committed to it. And that commitment must be communicated to all other parts of the university. It is not necessary to hire a substantial number of new staff personnel in order to implement PPBS. One or two professional staff people aided by a computer programmer, it was found, could accomplish the task if the regular university personnel were cooperative. This university also found it helpful to make a sharp distinction between

budget analysis and budget decision-making. Analysis was a staff task; decision-making was the process of discussion and determination by the authority structure of the university.

In implementing PPBS, the university developed a format, shown in the accompanying table, which brought together essential data about activities and costs by department over a period of time. This kind of analysis was especially useful in determining the incremental costs involved if there were an increase in enrollment. It was found that in many instances incremental costs were considerably less than average costs.

Another implication of program budgeting is the integration of costs and available income. No particular level of instructional costs is necessarily ideal in and of itself. The critical issue for university management was the relationship of costs to available income. As a consequence, it was necessary to determine what income a program might generate so that this income could be compared with projected expenses.

In developing its program budget procedure, the university found it desirable to have various levels of aggregation: the department level, the program level, and the university level. There was some uncertainty about allocating overhead or indirect costs to programs, as well as some uncertainty about dividing unrestricted gift and endowment income by programs. These issues were resolved, however, by allocating space costs on a square footage basis but retaining all other overhead costs on an unallocated basis. In effect, this arrangement recognized university support as a program category. Unrestricted income appeared as income for this support program. A first determination of the university's program budget for instruction and general operation is shown in Table 2. These program data include housing and student aid.

This university concluded that program budgeting could be of substantial usefulness in the university setting. The effort had produced a greater awareness of the total costs of the university. It had encouraged greater attention to the total implications of various decisions under consideration and upon costs in relation to income. It had promoted long-range planning, and it had resulted in a systematic approach to data collection and data use. There were difficulties as well. It was not easy to quantify objectives, especially when these had important qualitative attributes as well. The data system was difficult to maintain; academic personnel are not report-minded and tend to resent report requests. The output data always needed careful additional interpretation. And, although the system might provide information for the decision-making process, it was not a substitute for it.

In another university, the staff analysts took the opposite position that program budgeting in the "text book" sense was not possible "for the foreseeable future." This staff study declared that PPBS required five steps: (1) defining objectives; (2) developing long-range plans and programs; (3) converting plans and programs into an annual operating budget; (4) developing a reporting system comparing costs with budgets; and (5) developing indicators to show the relationship of costs to benefits.

TABLE 1

ACADEMIC RESOURCES PLAN

DEPARTMENT: _____	Base Year FY 70	Past Year FY 71	Current Year FY 72	FY 73	FY 74	FY 75	FY 76
Personnel							
Faculty							
Tenured							
Non-Tenured							
Total Faculty							
Effective Teaching Staff (FTE's)							
Faculty							
Tenured							
Non-Tenured							
Assistants in Instruction							
Total Effective Teaching Staff							
Research							
Prof. Research Staff (Univ. Funds)							
Prof. Technical Staff (Univ. Funds)							
Assistants in Research							
Student							
Undergraduate							
Course Enrollments							
Majors							
Students Supervised							

- Graduate
  - Course Enrollments
  - Students Supervised

Financial Resources

- **Operating**
  - **Direct**
    - **Expenses**
      - Faculty Salaries and Benefits
      - Other Salaries and Benefits
      - Other Expenses
    - Total Expenses
    - **Income**
      - Endowment
      - Gifts and Grants
      - Tuitions
    - Total Income
  - Net Direct Expense
  - **Support of Graduate Students**
    - Expenses
    - Income
  - Net Support of Graduate Students
  - **Operations and Maintenance**
    - Major Maintenance
    - Equipment Acquisition
  - **Net Operating**
  - **New Construction**

TABLE 2

PROGRAM BUDGET SUMMARY FISCAL YEAR 1972

PROGRAMS	$ MILLIONS	% OPERATING EXPENSES
I. Undergraduate Instruction		
Operating Expenses	-15.7	21.6%
Operating Income	+16.1	
Operating Net	+ 0.4	
II. Graduate Instruction		
Operating Expenses	-13.4	18.4%
Operating Income	+11.4	
Operating Net	- 2.0	
III. Sponsored Research		
Operating Expenses	-29.0	39.8%
Operating Income	+29.0	
Operating Net	0.0	
IV. Unallocated (Support)		
Operating Expenses	-14.7	20.2%
Operating Income	+16.6	
Operating Net	+ 1.9	
GRAND TOTAL		
Operating Expenses	-72.8	100%
Operating Income	+73.1	
Operating Net	+ 0.3	

Asserting that there was no way to define the benefits of higher education, this report declared that PPBS was not possible within the university. Obviously, this conclusion rested upon the assumption that benefit measurement is the essential ingredient of PPBS. If this staff report had used the term "output" instead of the term "benefits," one wonders if the conclusion would have been the same.

To be sure, there are differences of opinion within college and university management as to whether or not there are quantifiable outputs involved in higher education. It seems evident that quantifiable outputs are available. Whether these output measurements are satisfactory, or as satisfactory as might be desired, is another matter.

In this instance, the university analysts decided that their resource reallocation procedure had developed an input budgeting system which provided cost data for a limited range of output categories, which afforded a somewhat imprecise linkage between input and output, and which established an ill-defined and continually changing value system for assessing the benefits of the outputs of the university. Some would identify such a budget system as program budgeting; others might prefer a different designation. The process itself was the essential concern under the new circumstances of university management.

This particular university study pointed out that there were at least three different ways of presenting budget data, illustrated in Table 3. The illustration makes no mention of outputs. In practice, the university designated a full-year equivalent student as the standard workload measurement for budget purposes. Moreover, the university utilized six program categories for establishing its general staffing standards for full-year equivalent students. These program groupings were: (1) standard cost lower division instruction; (2) high cost lower division instruction; (3) standard cost upper division instruction; (4) high cost upper division instruction; (5) first level graduate instruction, including pharmacy and law; and (6) second level graduate instruction, including medicine, dentistry, and veterinary medicine.

The data in Table 3 do not indicate the allocation of overhead costs. Presumably, overhead was treated as a separate program category, as general university support of instructional activity.

In any event, it seems clear that resource reallocation has compelled research universities to think again about their long-range planning, to explore ways of relating plans to budgets, and to develop cost data in relation to outputs and to available income.

Participation

In all five cases of resource reallocation, a critical concern was the organization of and procedure for participation in the decision-making process. Whether participation was highly structured, informally structured, or somewhere in between, the only common elements were those of time and energy. Participation is a demanding and exhausting procedure.

TABLE 3

ALTERNATIVE BUDGET APPROACHES

I. Organizational—Object Approach

Unit	Objects of Expenditure			Total
	Salaries	Supplies	Equipment	
Law	$ 1,300,000	$ 56,000	$ 1,000	$ 1,357,000
Medicine	7,000,000	1,500,000	2,500,000	11,000,000
Agriculture	3,500,000	1,010,000	250,000	4,760,000
	$11,800,000	$2,566,000	$2,751,000	$17,117,000

II. Organizational—Program Approach

Unit	Program			Total
	Instruction	Research	Other	
Law	$ 1,051,000	$ 205,000	$ 101,000	$ 1,357,000
Medicine	5,000,000	6,000,000	—	11,000,000
Agriculture	2,700,000	1,550,000	510,000	4,760,000
	$ 8,751,000	$7,755,000	$ 611,000	$17,117,000

III. Object—Program Approach

Unit	Program			Total
	Instruction	Research	Other	
Salaries	$ 7,000,000	$4,200,000	$ 600,000	$11,800,000
Supplies	1,050,000	1,505,000	11,000	2,566,000
Equipment	701,000	2,050,000	—	2,751,000
	$ 8,751,000	$7,755,000	$ 611,000	$17,117,000

In one highly structured priorities committee, there was general agreement that the process of faculty, student, and staff participation in the membership and the deliberations had proven useful. All members had devoted substantial time to the work of the committee; deliberations benefited from the expression of faculty and student points of view, and communications were improved through shared data. No attempt was made to treat any of the budget data on a confidential basis, except that individual faculty salaries were not discussed and the names of large donors to the university were not released.

In another instance, a considerable amount of time had to be spent by administrative officers in convincing faculty and student members of the retrenchment and reallocation committee that their inputs would receive careful attention. The initial attitude of most faculty and student participants was that the administrative staff of the university already knew what it intended to recommend to the board of trustees and that the committee had been brought into existence solely to lend some degree of authenticity or acceptability to those decisions. A considerable amount of effort was expended simply in providing definite, concrete evidence that there were many aspects of internal budgeting which were unresolved and upon which recommendations of the committee would have substantial weight.

It is tempting to halt at this point and to consider the matter of faculty-student hostility or distrust toward administrative personnel of a university as one of the major complications in the resource reallocation process. No one can deny the existence of this sense of hostility, no matter how irrational or how unjustified it may be. And in some instances, there are enough accumulated grievances of one kind or another on the part of faculty members and students to give this hostility some measure of justification.

One university analysis pointed out, for example, that throughout the process of budget readjustment, there was a disposition on the part of faculty and students to believe that all the financial sacrifices would be visited upon them, while no financial sacrifices would be required of administrators. Constructing machinery to overcome this kind of attitude is one of the major concerns of presidents and trustees.

It is sufficient here simply to recognize that this hostility exists, that a budget process which seems to give particular weight to the points of view of administrative officers (especially of the support services) as against faculty and student points of view will be suspect, and that some kind of organizational arrangement to mitigate this hostility seems desirable. And certainly one of the principal by-products of the resource reallocation process should be a new and better understanding of the nature and indispensability of the support services of a university.

At another university, although a vice-provost was given the specific assignment of examining academic budgets, the university president also appointed an advisory committee of five faculty members and two students to work with this official. The committee was quite active, especially in the initial stages of the reallocation effort. In addition, the

university published extensive material, including tables and charts, about the budget in the university newsletter and in the alumni bulletin. The experience here seemed to indicate that as the university proceeded with the program and published more and more information about its budget problems, general faculty and student interest tended to decline. Interest was, of course, high whenever some specific proposal was being considered affecting some particular program or office; but this interest was usually confined to the group or persons perceiving themselves to be directly related to or threatened by the proposal.

If formal hearings were scheduled to obtain any recommendations about budget needs, a few students and a few faculty members would appear to press some particular interest. When questions were asked about how to pay for these expanded services, that was somebody else's problem. In particular, committees encountered a widespread belief that in a budget of fifty to one hundred million dollars a year, administrators could always find funds with which to support any effort in which they were really interested.

Because of the prevalence of this attitude, committees and administrative officers found it essential to relate university income to university costs, to clarify how much university income was restricted to specified purposes, and to point out that so-called general income (such as student tuition) had a general implication about its appropriate use. It proved to be counter-productive ever to separate the discussion of university needs from a discussion of university income.

Another consultation process was accomplished informally by the president and his associates. The president met with many different faculty and student groups throughout the university. The advantage in this arrangement was that the president had an opportunity to gauge faculty and student interest in the issues of resource reallocation and thereafter was able to provide information to and meet with various groups to the extent they were interested.

There was general agreement in all five universities that the initial consultative arrangements and procedures could not be continued on the same scale and scope year after year. When a budget adjustment program is first launched, participation in the consideration of the objectives and of the methods for resource reallocation is necessarily extensive. As already noted, this process is exhausting and voraciously time-consuming. Both faculty members and students tended to react in the same way after the initial stage had been completed. They expressed the opinion that surely it was possible to devise some process less demanding of time and effort.

Unfortunately, no university found any simple solution to the problem of involving all sectors of the university community in consideration of resource reallocation on a part-time, catch-as-catch-can basis. Resource reallocation is a problem in details, a problem in the balancing of one set of choices against another set of choices, a problem in careful consideration of the probable impact of any one particular decision. Should a

university reduce the volume of its student aid for undergraduates? Should the university eliminate graduate instruction in classical languages or in archaeology? Could the subsidy to the teaching hospital be reduced? Should bookstore prices be cut? Should student tuition charges be increased? The list of issues can be extended almost indefinitely.

There are no easy answers to these kinds of questions, and their consideration requires extensive attention. If faculty, students, and staff members wish to join administrative officers in developing the budget recommendations which must eventually go to the board of trustees for action, then their participation in the process of considering those recommendations must be extensive. Indeed, the very act of participation is a guarantee that more time must be devoted to the budget process. Universal participation has probably increased five, six, or tenfold the number of man-hours in a university devoted to budget consideration. The real challenge is to prove that all these man-hours have produced more reasonable or generally more acceptable decisions about the utilization of university resources.

The Scope of Resource Reallocation

What parts of the university budget are particularly subject to resource reallocation? Each university, although all have not usually divided their budgets into five component parts (instruction, research, public services, auxiliary services, and student aid), tended to concentrate its concern with resource reallocation upon the instruction and the student aid budgets.

One university published budget data setting forth those parts of the expenditure and income data which were subject to review in the reallocation procedure. Its research budget and its auxiliary service budget were omitted from this process. As shown in Table 4, the university provided data about the base year of 1970-71, the current year of 1971-72, and projections for three other years reflecting the changes made through resource reallocation.

This university decided to omit its research and its auxiliary service budgets on the grounds that they did not constitute a special problem. The budget for sponsored research was expected to be balanced upon the basis of available income. Indeed, the normal procedure of federal government research granting agencies has been to reimburse the university for actual research expenditures as defined by the grant, plus some allowance for indirect costs. In this way, the formal costs of sponsored research are paid for by the sponsor. There may be other costs, however, which are not reimbursed and which are considered to be the university's contribution to research.

In this instance, the university decided also not to review the auxiliary services: university housing, bookstore, recreation, and intercollegiate athletics. These services were expected to be self-supporting from charges or

TABLE 4

BUDGETED EXPENDITURE AND INCOME
SUBJECT TO REALLOCATION

(Thousands of Dollars)

	1970-71	1971-72	1972-73	1973-74	1974-75
Expenditure					
Instruction and Departmental Research	$30,027	$32,760	$34,731	$36,927	$39,464
Libraries	5,634	6,126	6,526	6,936	7,361
Student Services	4,092	4,332	4,552	4,772	5,002
Plant Operation	6,358	6,845	7,185	7,535	7,895
Administration	7,724	8,320	8,820	9,345	9,880
Development	1,641	1,726	1,811	1,896	1,981
Student Aid	2,133	2,943	3,643	4,333	5,008
	$57,609	$63,052	$67,268	$71,744	$76,591
Income					
Tuition	$28,077	$30,847	$33,279	$35,781	$38,298
Endowment	10,266	11,236	11,935	12,705	13,485
Gifts and Grants	4,285	4,665	5,314	6,091	6,996
Reimbursed Indirect Costs	9,807	10,535	11,110	11,735	12,375
Other Income	3,947	4,819	4,980	5,182	5,387
	$56,382	$62,102	$66,618	$71,494	$76,541
Deficit	($1,227)	($ 950)	($ 650)	($ 250)	($ 50)

from earmarked income and were not considered a necessary subject for review in the resource reallocation process.

Another university made the same decision but later concluded that the decision was a mistake. It was found that the sponsored research budget had a profound impact upon the budget for departmental instruction and research. In addition, the budgets for auxiliary services, including intercollegiate athletics, were not in balance. More income had to be obtained for these operations, or the scope of the operations had to be reduced.

Public service activities did not bulk large at the four private research universities, and, in the one public university, these projects were separately funded. Charges for continuing education in the private universities met the costs and even provided some "surplus" for academic departments. None of the four private universities was engaged in public broadcasting. At one private university it was found that a dentistry clinic was running a deficit because of extensive dental care provided to the indigent of the city. The university insisted that the dental clinic receive increased income or reduce the clinic's service to the poor. By the end of 1972, some community funds were being provided to maintain this service.

Medical Education and Teaching Hospitals

Four of the five research universities studied were engaged in medical education; two operated their own teaching hospitals. In only one was medical education involved in the internal budget reconsideration.

Two of the private research universities had succeeded in obtaining financial support for their medical education programs from their respective state governments before the budget crisis became a matter of general university concern. Neither operated a teaching hospital; both had developed cooperative instructional relationships with voluntary and public hospitals. Therefore, medical education was not an immediate budget problem for these two universities.

The public research university was operating teaching hospitals, but the state legislature had provided increased support for these hospitals at the same time it was unwilling to provide additional subsidy for instructional activities. The budget review process in a fourth university, however, led to a decision to increase patient charges at the teaching hospital and to eliminate care of indigent patients. The earmarked endowment income and the charges to patients for medical care (in addition to charges for hospital care) were sufficient to meet the costs of medical education.

The whole subject of medical education, with the impact of medical research upon the cost of medical education and with consideration of the operating expenses of teaching hospitals, thus was not a matter of extensive concern in the resource reallocation process of these five research universities. This subject might have received greater attention under other circumstances and in other research universities.

Public Relations

To what extent should the financial plight of a university be publicized? There is little agreement about the appropriate response to this question and even less record of experience upon which to draw. In one instance, the financial crisis of the university was given widespread publicity in the community. In another instance, the financial difficulties were certainly not concealed but neither were they publicized.

A climate of crisis is sometimes essential in order to bring about change. One university was convinced that only with a widespread internal understanding of impending doom would faculty and students accept substantial change without bitter resistance.

On the other hand, there was fear in another university that a climate of crisis might well prove to be counter-productive. Therefore, the president and his associates determined to present the whole effort of resource reallocation as a challenging chore, but not a critical imperative. They felt that general anxiety about the future of the university would result in a loss of morale, would suggest greater change than was actually contemplated, would discourage external contributions, and, in general, would hamper rather than promote needed changes.

Perhaps the decision about publicity and about the tone of the publicity is a unique one for a particular university at a particular time.

Income in Relation to Expenditures

The essence of the budget difficulty for most research universities is that the rate of increase of expenditures is higher than that of income. The experience of one private research university in 1970-71 and its projections as made for subsequent years are shown in Table 5. The increase in expenditures in any one year became necessarily the expenditure base for the following year. If the increase in expenditures was greater than the increase in income, then operating deficits accumulated. This university faced a five year accumulated deficit of 10.5 million dollars in 1970-71. Unless the university was willing to draw down its endowment and its reserves by this amount, it had no choice other than to undertake a reallocation of resources.

Moreover, a budget adjustment program or a resource reallocation program is not a one-time proposition. The dynamics of operation at a research university are such that the rate of expenditure increase year by year may become *cumulatively* greater than the rate of increase in income. A deficit may be only one and one half million dollars in 1969-70 and six million dollars by 1974-75. An operating budget may be balanced in 1972-73 and be badly unbalanced again in 1974-75.

The circumstances for a second private research university are shown in Table 6. By strenuous effort, a 4.2 million dollar deficit in 1970-71 was reduced to zero in 1972-73. But the projections of income and expense for 1974 and 1975 showed increased deficits again. The university is constantly faced with bringing the dynamics of increased costs under control while reversing the dynamics of reduced income.

TABLE 5

BUDGETED EXPENDITURES VERSUS BUDGETED INCOME

The Case of One Private Research University

	(Thousands of Dollars)				
	1970-71	1971-72	1972-73	1973-74	1974-75
Expenditures					
Budget base (prior year)	$52,094	$56,848	$61,248	$65,220	$69,246
Increase	4,754	4,400	3,972	4,026	3,868
	$56,848	$61,248	$65,220	$69,246	$73,114
Income					
Budget base (prior year)	$50,305	$54,484	$58,609	$62,556	$66,639
Increase	4,179	4,125	3,947	4,083	4,236
	$54,484	$58,609	$62,556	$66,639	$70,875
Deficit	($2,364)	($2,639)	($2,664)	($2,607)	($2,239)

TABLE 6

THE BUDGET PROBLEM OF A RESEARCH UNIVERSITY

(Thousands of Dollars)

	Actual 1970-71	Actual 1971-72	Budget 1972-73	Projected 1973-74	Projected 1974-75
INCOME					
Tuition	$17,362	$18,290	$19,868	$18,527	$18,134
Endowment	6,418	6,861	7,834	7,560	7,560
Federal Funds	21,257	21,153	19,618	19,168	18,668
State Subsidy	1,541	2,466	2,796	3,100	3,100
Gifts and Grants	7,376	9,024	8,461	8,900	9,200
Overhead Recovery	3,898	3,753	3,881	3,833	3,734
Auxiliary Services	5,302	5,304	5,556	5,500	5,500
Other	1,691	1,760	1,978	2,000	2,000
	$64,845	$68,611	$69,992	$68,588	$67,896
EXPENSE					
Instruction and Student Aid	$27,622	$29,070	$30,102	$31,737	$33,729
Research	21,257	21,153	19,618	19,168	18,668
Libraries	2,082	1,883	1,924	1,975	2,025
Student Services	1,854	2,033	1,783	1,783	1,783
Plant Operations	4,497	5,076	5,271	5,534	5,812
Administrative Services	5,593	5,498	5,424	5,552	5,730
Auxiliary Services	6,130	5,807	5,870	5,800	5,800
TOTAL	$69,035	$70,520	$69,992	$71,549	$73,547
Deficit	($4,190)	($1,909)	-0-	($2,961)	($5,651)

Instructional Cost

One private research university employed a generalized approach to the problem of analyzing instructional costs and income. This university consisted of a college of arts and sciences, a college of education, a college of business and public administration, a college of engineering and science, a school of the arts, a graduate school of business, a graduate school of public administration, a college of law, a college of social work, a school of continuing education, a college of medicine and a college of dentistry. The direct income and expenses of each instructional unit were determined by the university.

Direct expenses of each instructional unit consisted of salaries and fringe benefits for faculty and support staff (teaching assistants, secretaries, clerk-stenographers, laboratory assistants), instructional supplies and equipment, travel, the costs of the dean's office, departmental library expenditures, and the costs of any space exclusively utilized by a single instructional unit.

Direct income consisted of student fee income generated by the course enrollments of each instructional unit, any endowment income specifically earmarked for the instructional unit, and any gift or miscellaneous income generated by the instructional unit. All of these sources of university income were credited to the particular colleges and schools of the university.

Upon the basis of these data, the following results for the academic year 1970-71 were obtained:

	(Thousands of Dollars)		
	Income and Gifts	Direct Expenditures	Income as a Percent of Expenditures
Arts and Sciences	$22,824	$16,367	139
Education	10,984	6,966	158
Business and Public Administration	2,269	1,508	150
Engineering and Science	4,995	3,722	134
School of the Arts	1,990	1,579	126
Graduate School of Business	4,596	2,825	163
Graduate School of Public Administration	1,065	510	209
College of Law	3,844	2,355	163
College of Social Work	765	731	105
College of Dentistry	3,256	2,099	155
School of Continuing Education	5,608	4,675	120

The university also had overhead costs to consider: the costs of admissions, registration, plant operation, student services, the general library, fiscal and accounting activities, personnel management, the operation of central services (purchasing, reproduction, mail, telephone), and the cost of top management. To these indirect or overhead costs was also added the cost of student aid provided from general income (not from earmarked income). From these indirect costs were then subtracted general endowment and gift income not earmarked for any particular college or school.

These items of income and expenditure were projected through the fiscal year 1974-75, through estimates of enrollment, projections of future costs, the calculation of possible economies in the operation of overhead services, and the projection of future income from student charges and from philanthropy. As a consequence, the university projected that each instructional unit would need to obtain income equal to 174 percent of its direct expenditures in order to balance the budget.

In this approach, the university did not evaluate the desirability or quality of any particular instructional program, nor did it establish any particular pattern of instructional procedure. Rather, the university simply told all instructional units, each school and college of the university, that they would have to manage their expenditures so that income would equal 1.74 times cost. Certainly, the implication of this approach was that each school and college could and should make such adjustments in staffing patterns, in faculty compensation, in other costs, and in the production of income as it pleased, provided that total income was 74 percent greater than the direct expenditures.

This kind of approach was often described by former Harvard President James B. Conant as the expectation that each tub would stand on its own bottom. The advantage to this arrangement is that it maximizes the management autonomy of each college or school within the framework of the university. The role of the university then centers on managing central services, facilitating college and school activities as requested, and checking results to make certain that each unit does meet its assigned income target. The disadvantages to the arrangement are the limited scope of central management and the encouragement given to quite varied practices and procedures within an enterprise claiming to possess some degree of internal coherence.

In any event, this approach represents one method of resource reallocation within a large and diverse research university.

Undergraduate Student Aid

Two research universities directed a good deal of attention to the subject of undergraduate student assistance. In one instance, the university, in the fiscal year 1971, was spending over two million dollars for student aid, which was approximately twenty percent of its undergraduate student fee income for that year. As many as forty-five percent of all freshmen were

receiving student financial assistance in some form. Of those two million dollars, some $500,000 were being provided from general (not earmarked) income.

Even more disturbing was the prospect that, by 1974, the student aid program at its current level of commitment would require two million dollars from university general income. The university was facing substantial deficits in its operating accounts; the question was thus posed whether or not the university could continue to fund student aid at that level.

The problem was referred to the standing committee on admissions and financial aid, which strongly urged that the university continue to offer financial assistance as needed to every student admitted. This position would have maintained the high academic standards of the admissions process and would have encouraged the enrollment of young people of high academic promise from middle income families. The difficulty with the committee recommendation was simply that it offered no proposals for financing this commitment. It was obvious that there were strong factions within the university opposed to a lowering of admission standards for the general student body so that more persons from families able to pay the high tuition fees of the university might be enrolled.

The resources committee which reviewed the recommendations of the admissions and financial aid committee agreed in principle. But the committee realized that a student aid policy of this kind could be financed within a balanced budget only under one of two conditions: the university would have to receive increased income for student aid or curtail instructional expenditures (by foregoing faculty salary increases or by reducing the instructional staff). The resources committee would not recommend the second line of action; they expressed the hope that more funding of student aid would be forthcoming and proposed that the student aid program of the university should be modified until further income was available for this purpose.

The resources committee decided there should be no reduction in student aid for disadvantaged students. Several years before, the university had pledged to provide all the financial assistance needed which would enable the university to enroll ten percent of each year's freshmen from black and other minority groups. These students were not expected to meet either the SAT scores or the high school record of other admissions. This phase of the admissions and student aid program was to be maintained, with a slight increase in the loan portion of the student aid package for disadvantaged students.

For all other students, the resources committee decided that the loan and work offer portions of the student aid package should increase and that the direct financial grant should be reduced to the level of income available to the university from earmarked sources. The decision seemed appropriate for the 1972 budget and for the budget projections of 1973 and 1974. Whether or not the decision could be sustained beyond that time was uncertain, depending in large part upon the success of the university in obtaining increased sources of income for student financial assistance.

All five universities in varying ways wrestled with the student aid problem. The objectives of each university were similar: to select students for admission upon the basis of academic promise rather than upon the basis of the economic status of their families, and then to assist those students in meeting the tuition and other personal costs of enrollment in the university. The universities were not willing to change the academic standards for admission, although they were actually doing so for so-called disadvantaged students. The issue was formulated not in terms of the desirability of enrolling students of diverse academic backgrounds or of varied intellectual or cognitive abilities, but in terms of enrolling students on the basis of ability as opposed to wealth.

The problem of student financial assistance is of critical importance for the research university located in a large city. Three of the five research universities were so located, and when they made their deliberate policy choice to become major research universities, they turned their backs upon a possible commitment to the service of students drawn from the city itself. This policy decision was dictated by each university's definition of academic excellence and by the stated intention to be a national rather than local institution of higher education. A university designed to serve a local community must be prepared to enroll large numbers of part-time students and large numbers of students of diverse academic abilities.

The research university located in a small community had no choice; it had to seek a student body on a national basis. The research university located in a large city had a choice, but the choice of local service was seen as incompatible with the desire or determination to maintain the status of a major research university.

The problem of undergraduate student aid has to be examined in the context of the objectives and the resources of the institution involved. Thus was the matter reviewed in the process of resource reallocation within these five universities.

Graduate Student Aid

The subject of undergraduate student aid leads inevitably to the subject of graduate student aid, a considerably more complicated matter. The graduate student is more closely tied to the mission of the research university than is the undergraduate student. A high quality program of graduate education and of basic research can only be maintained if the university enrolls high quality graduate students. Beyond this, the graduate student, far more than the undergraduate student, is likely to separate himself or herself from parental financial resources. Indeed, the idea of a needs test may not be at all appropriate for the graduate student.

In spite of the Twenty-sixth Amendment and the lowered age of majority in several of the states, one still thinks in terms of the undergraduate student entering higher education at eighteen years of age as having close parental ties and as having a reasonable claim to parental financial support. The graduate (or graduate professional) student at

twenty-two years of age is usually envisioned in a different family situation. To be sure, especially in such graduate professional fields of study as law and medicine, the graduate student may continue to receive parental support. Yet, a considerable number of graduate students wish and expect to pursue graduate education with financing from their own earnings, from the earnings of a spouse, or from a fellowship stipend.

Research universities first have to decide whether or not they should primarily enroll in their graduate programs students who have just received their baccalaureate and who desire to pursue graduate study on a full-time basis. Three of the five research universities in this review had to confront this issue. And, in general, each university recognized that it had to reduce its commitments for institutional support of graduate study. With some reluctance, each determined to enroll on a part-time basis a larger proportion of graduate students who lived in the city and who were already employed, an unavoidable decision in the light of the reduction in federal government fellowship support.

To the extent that each research university continued to receive federal government research grants, a certain number of research assistantship positions remained available. These could be used to provide part-time or even full-time employment to graduate students. But these employment opportunities were not sufficiently numerous to maintain the quality and magnitude of graduate student enrollment desired by each research university.

For research universities located in small communities, the problem of graduate student assistance was doubly acute, for large numbers of potential students to be drawn on a part-time basis from a large city were not available, should they be needed. In these instances, graduate student enrollment depended upon the employment and fellowship offerings which the universities could provide.

One university fixed the minimum desirable size of its graduate enrollment at thirteen hundred students. It was determined that this enrollment was necessary to maintain a quality program of graduate education utilizing the available staffing and other resources of the university. And, in order to enroll these thirteen hundred graduate students, the university had to be prepared to offer employment or fellowship appointment to at least twelve hundred students.

For the research university, a major policy issue is the extent to which teaching assistants shall be used in the instruction of undergraduate students. During the 1960's, some undergraduate students had complained that they seldom, if ever, encountered a senior faculty member in their course enrollments. Concerned about this criticism, research universities reviewed and began to modify their instructional practices. But if these changes involved fewer teaching assistantships, then graduate enrollments would be adversely affected. If graduate assistants were employed in the same numbers but with their teaching role curtailed, then the costs of undergraduate instruction would be substantially increased.

The research universities next had to ask whether it was desirable to continue to maintain graduate enrollments at the 1968-69 levels in the light of the changing employment demands for persons with doctoral degrees. Because of the concern with future employment opportunities for Ph.D. recipients, the research universities abandoned their plans further to expand graduate enrollment and tended to stabilize or even to reduce these enrollments. Four of the five research universities had graduate enrollments in 1972-73 which were ten to fifteen percent lower than in 1968-69, and which were about twenty percent below their previously planned maximums.

The basic issue remained: to what extent would each university provide support for graduate students? Between 1968-69 and 1973-74, one research university found that the number of graduate students supported by federal government grants would decline from nearly eleven hundred to under five hundred. If the graduate enrollment level represented by these students was to be maintained, the university would have to provide nearly 2.5 million dollars in fellowship support.

The university decided to offer loans instead of fellowships to many graduate students. In the fiscal year 1971-72, this university found that fifty-two percent of those admitted to graduate school and offered loan assistance actually enrolled. Among students admitted to the graduate school and offered fellowship support, the acceptance rate was fifty-seven percent. Whether or not this favorable record on enrollment only with loan assistance could be maintained remained uncertain.

The research universities are becoming more hard pressed to maintain the quality of the graduate school enrollment they seek: able students studying on a full-time basis and supported in part by fellowship or teaching assistantship appointments. Several of the universities were intrigued by the possibility of an income contingent loan as a new source of student financing but were inclined to think that such an arrangement had to be introduced on a state-wide or even nationwide basis in order to be effective.

The Costs of Graduate Education

It is essential carefully to examine the expense of instruction in the research universities. As these universities sought to gain some clear understanding of the component parts of their expenditure outlays, they found information most readily available in some kind of outline as follows:

	Percent of Expenditures
I. Academic Departments	
a. Instructional salaries	
(1) Faculty salaries	14
(2) Teaching assistantships (stipend and tuition)	2

	Percent of Expenditures
b. Other salaries	8
c. Expenses	10
d. Benefits	4
2. Special Research Centers and Institutes	
a. Salaries and benefits	7
b. Expenses	6
3. University Services	
a. Libraries	5
b. Computer Center	2
c. Security	1
d. Other	1
4. Plant Operations	12
5. Administration	
a. Academic	4
b. General	6
6. Auxiliary Services	
a. Dormitories and food service	5
b. Athletics	1
7. Student Aid	
a. Undergraduate	4
b. Graduate	8

In this array of expenditure data, two factors became immediately evident. Sponsored research in considerable part tended to be integrated with instructional activity; thus, a senior professor of chemistry might be engaged in a sponsored research project as well as in the instruction of students. And the second factor was the impossibility under this aggregation of expenditures to determine the costs of undergraduate as distinct from graduate education. From this point of view, most academic departments made very little differentiation in their budget planning between the expense of instruction and that of research and between the expense of undergraduate instruction and that of graduate instruction.

In terms of dollar amounts, the percentage distribution of expenditures for the fiscal year 1971-72 at one research university is shown above. The largest single component of the budget was that for academic departments, amounting to thirty-eight percent of the total. Although other components were by no means immune from review, it was essential in this university to look at the budgets of academic departments with some care.

Indeed, in their review of resource allocations, research universities found that budgeting for faculty positions was the most complex aspect of their entire planning and budgeting process. This complexity arose

from built-in characteristics of faculty status: departmental organization, the procedures of recruitment, tenure appointments, compensation practices, and workload standards. If a faculty member were awarded tenure, he or she expected to remain until retirement, unless lured away to another university. Compensation might involve income from general funds, research funds, or other restricted funds. Compensation also meant sabbatical leaves, which demanded reserves not less than seventeen percent of compensation per year, if it were assumed that the replacement would cost only half of the annual compensation.

No issue, however, was more complicated or bothersome than that of workload. Faculty members considered research to be as important a part of their workload as instruction. Moreover, in a research university, there was a tendency to consider graduate instruction to be more important than undergraduate instruction. In addition, there were other demands upon faculty time: advising students and participating in the university's decision-making process.

The research university could not avoid the issue of the cost of its commitment to graduate instruction and research. That cost was invariably revealed, first, in the instructional workload standard for faculty members. At one research university, the standard instructional load was six credit hours of course work per semester for full-time professors in the biological sciences, physical sciences, mathematics, engineering, medicine, and dentistry. For the humanities, the social sciences, and the applied social sciences (such as law, business, and social work), the standard workload was nine credit hours of course instruction. In other research universities, the standard was six credit hours for all faculty members. These standards applied to every faculty appointment regardless of class size, undergraduate or graduate instruction, or actual involvement in a research project.

In one research university, a substantial effort was made to differentiate between the costs of graduate and undergraduate instruction. The results for 1969-70 indicated that undergraduate instruction, including the costs of student aid, student housing, and university overhead, came to $4,000 per year per student. The costs for a graduate student, including fellowship assistance, housing, and university overhead, came to $12,500. Only the expense of sponsored research was omitted from these calculations. If these expenditures had been added to the cost of graduate instruction, the outlay per graduate student would have been over $37,000.

In another research university, the resource reallocation process led to a decision to lift the ratio of full-time faculty members to undergraduate students to an average figure of one to twenty-two. The ratio became about one to eighteen when the full-time equivalent of teaching assistants was added to the full-time faculty equivalent. This decision was made in an effort to maintain the quality of graduate instruction. On a cost basis, it was estimated that this action reduced the average instructional expenditure per full-time undergraduate student in arts and sciences from around $2,000 to $1,600. The instructional expenditure per full-time

graduate student in the arts and sciences was maintained at approximately $6,000.

A third research university made a strenuous effort to determine by department the number of faculty positions which were properly allocated to instructional activity and the number properly allocated to sponsored research. From a faculty manning table of 650 total full-time equivalent positions, it was found that 554 were properly carried on the instructional budget and ninety-six were properly carried entirely on the sponsored research budget. As the support of sponsored research threatened to decline, the future financing of these ninety-six faculty positions became a major concern. Actually, almost all of these faculty members drew part of their salary from the research budget and part from the instructional budget. The university concluded that it had a moral obligation to retain their positions even if the special funding of sponsored research declined. It was thus critical to maintain the volume of sponsored research. If it were not maintained, then the faculty positions supported by this income would have to be supported by other income or eliminated upon the grounds of financial exigency. This elimination would not be a simple matter, the universities found, when it entailed eliminating one half or one third of a faculty position.

Only in one instance did a university completely eliminate a graduate program. In this case, the university decided after extensive discussion that its resources to maintain a graduate program in one foreign language area were not adequate and the program was accordingly scheduled to be phased out over a period of three years. One criterion of evaluation was the rating of the program in relation to other graduate programs of the university as shown in the Roose-Andersen report for the American Council on Education in 1970. The savings from this action were calculated to be $50,000 in the first year and $125,000 by the fourth year.

In another university, the resource reallocation process led to a new procedure in making faculty appointments. If any vacancy from death, retirement, or resignation occurred in any department, no new faculty appointment process could be initiated until the long-range departmental plan had been carefully reviewed by the provost. In addition, the university found it feasible in terms of cost to encourage early retirements (at age 65) in order to provide opportunities to bring in younger men and women.

With the problem of faculty tenure, on the other hand, a ready solution was not so apparent. At least seventy percent of the faculty was tenured, and the universities worried about their ability to attract and retain younger faculty members. One choice was to have a one hundred percent tenured faculty. Another university developed special resources with which to appoint younger faculty in anticipation of expected retirements.

There is no demonstration in the record of these five research universities of a university concern about the market for doctoral degree recipients. Each university seemed to assume that its particular mission was to educate talent for basic research and for service in a research university.

To be sure, there was some discussion of a possible declining market for such educated talent. But there appeared to be no consideration of other possible markets for the placement of doctoral degree recipients.

Other Economies

In each research university, many different kinds of reductions in expenditures were considered and some decreases actually achieved. University publications were reviewed and some cutbacks in the number and size were ordered. Other reductions were made in the number of secretarial and stenographic positions; in the staff of the personnel office, which brought about a reduction in recruiting and counseling activity; in the number of organizational memberships; and in the size of the security force. Renovation of existing facilities and their more intensive utilization replaced planning for new facilities. Some cutback in janitorial services was made. The operation of a bus service was eliminated. The level of heating was reduced in buildings. These kinds of actions were successful in obtaining some economies in operation costs.

But, frequently, it was discovered that these economies were greatly offset by other increased costs: the increases in utility charges, in food prices, in compensation of the operating staff, in the cost of minority and women recruitment, or in the cost of printing. Most economies were quickly absorbed by rising prices and other rising costs.

One university scrutinized the budget for intercollegiate athletics. The principal economies realized resulted from a reduction in pre-game training meals, the elimination of out-of-town travel support for the band and the cheerleaders, the elimination of general support for team banquets, a reduction in security at home games, a reduction in the size of the coaching staff, the elimination of freshmen teams in the sports where freshmen were eligible for varsity competition, and a reduction in the contest schedule for certain sports, especially where extensive travel was involved.

At another university a careful study of the feeding operation resulted in the closing of one dining hall. The number of choices in meal contracts offered to students was reduced, and during stated vacation periods meals were not offered. These actions reduced the size of the increase in boarding charges needed to ensure a financially self-sustaining operation.

Income

The expenditure part of a budget was, of course, only half of the story; there was also the matter of income. The challenges to budgeting in a research university were how to forecast correctly and how to increase income.

In several instances, the universities examined were embarrassed by the fact that actual income exceeded forecasts, while actual expenditures were less than those appropriated. In both the private and the public research

university, it is not easy to forecast gift income, governmental research grants and overhead reimbursement, endowment return, and student enrollments. For this reason, budget officers are likely to be cautious about their forecasts, especially when made ten months in advance of the beginning of the next fiscal year.

In the private research university, the prospects of philanthropic support are especially important. This fact is not always appreciated by faculty or students. If such support is forthcoming on a sizeable scale, the problem of balancing income and expenditures becomes less troublesome. If such support declines, as it tended to decline between 1968 and 1971, for a variety of reasons, then balancing the budget is more difficult.

The private research universities found that as they discussed income needs and expenditure levels with students, the students themselves recommended increases in tuition charges. Such increases were made, and much needed income was thereby obtained. These increases complicated the student aid budget but generally provided more income.

In one instance, a university found that when it had made about fifty or sixty percent of its desired progress toward curtailment of expenditures, the members of the board of trustees themselves were encouraged to increase their own support of the university and provided all the additional income necessary to balance the budget in 1971-72.

The board of trustees in one public university reviewed herein had a long-standing policy that the state government should provide, on the average, seventy percent of the instructional budget and that the student, on the average, should provide thirty percent of the instructional budget. When the state government refused to appropriate instructional support sufficient to maintain this ratio on an incremental basis, the university confronted a fateful choice. One possibility was to reallocate resources in terms of reduced program outputs or of reduced program inputs. The other possibility was to increase the student proportion of the instructional budget income. The university, in 1971-73, preferred to pursue the first course; it was unwilling to adopt the second line of action in advance of the 1973 session of the general assembly. But the university also found it necessary to begin to reconsider its policy position in preparation for the contingencies of 1973.

Conclusion

There was a general consensus in the experience of the five research universities that intensive efforts had to be made to bring income and expenditure in balance, that increases in expenditures should be reduced to the level of the slowdown in increased income, and that curtailments in expenditure or in increased expenditures should be made on a program basis. There was much discussion about establishing priorities among expenditure programs, but there were few, if any, criteria available or developed for determining the utility or benefit of one program in comparison with another.

There was general agreement about the actual procedures involved in resource reallocation. Faculty members, students, staff, and administrators had to be included in the consideration of income, expenditure, and priorities. The process was time-consuming; moreover, it called for a sizeable expenditure of intellectual and emotional energy. The efforts at communication almost always fell short of objectives; many persons in the academic community appeared apathetic about and little involved with the issues and their resolution. And there were always persons who were misinformed about the actual decisions or about the reasons for the decisions which were made.

In all cases, the approach to resource reallocation involved a careful formulation of program outputs in relation to cost inputs. Another factor involved was a review of the technology of output production. If expenditures were to be reduced, then such reductions might involve changes in program outputs: a decrease in student aid, a decrease in enrollment, a decrease in the number of programs, a decrease in the scope of a program. It was essential for all constituent groups of the academic community to know what the consequences of decreased expenditures would be. The other possibility was to strive to maintain the same level of output with reduced inputs; this meant a change in the work process, the technology of output production. The most obvious change was to try to maintain output with fewer man-hours of input. But other changes might be attempted, also, such as a reduction in the supplies and the equipment consumed in production. The university world is, of course, haunted by the fear that somehow a decrease in inputs will mean a decline in the quality of the educated student output.

A major concern for the research university was the future of federal support for basic research. One gains the impression that, in the private research university, federal funding of research projects, to a very considerable degree, had been integrated into the overall university performance of graduate education, especially at the doctoral level. As a result, a curtailment of federal research support became, in effect, a withdrawal of income which had become essential to the program of graduate education. Faculty members engaged in research continued to hold or were appointed to hold regular faculty positions. As research funding was stretched out or became more difficult to obtain, the private research university was not in a position simply to end the research project. The university had certain continuing commitments to people which it could not readily terminate.

As the research universities began to plan for the academic year 1973-74, their major concern was not the federal government level of research support but the federal government level of graduate student support. The prospect of a phasing out of fellowships and training grants, especially in the medical sciences, meant either further reduction in graduate student support or the development of new forms of graduate student support. In the light of the current job market for educated research

talent, the research universities were confused about the desirable course of action to adopt.

One also gains the impression that the public research universities were less affected by federal government research funding than by changes in state government funding of general operation. The public universities had done less to integrate research projects with graduate education. Perhaps the continued expansion of enrollment at the public research universities during the 1960's gave the universities somewhat more flexibility in handling faculty appointments. In any event, a slowdown in state government funding created the financial crisis for the public research university.

The problem of how to obtain increased income bulked large for all the research universities. For the private research university, there were only two major prospects: increased charges to students and increased philanthropic giving. Because of the budget stringencies, students came to see that the alternative to tuition was increased social support, support from a society often criticized as racist, aggressive, hypocritical, and immoral. The private universities also sought federal and state governmental support.

For the public research university, increased income depended primarily upon the actions of state governments. As these prospects declined, the public universities had to look elsewhere: to increased charges to students, to federal support, to philanthropy. These possibilities were being given serious thought in 1972 and 1973.

The research university had a dual commitment; there was a commitment to research as a means of advancing man's knowledge and a commitment to the instruction of students. The first commitment had been largely financed by the federal government since 1945 for both the private and the public research universities. The prospects for continued research activity, however, were dim, unless federal funding continued.

The commitment to students was financed for the private research university by charges to students, by philanthropy, and by an integration of federal research support with graduate education. For the public research university, instructional activity was supported primarily by the state governments.

With higher education in general and basic research activity (other than that in the health sciences) receiving a reduced public priority after 1969 and 1970, at both the federal and the state levels, the research universities had no choice except to review their allocation of available resources among their various programs. Resource reallocation was a painful process.

THE MANAGEMENT OF RESOURCES
THE EFFORTS OF ONE PRIVATE RESEARCH UNIVERSITY

CONTROLLING EXPENSES

- Not filling certain staff and faculty service
- Eliminating the use of temporary personnel
- Reducing administration staff and clerks and secretaries throughout the university
- Automating routine tasks
- Stretching out expenditures
- Consolidating administrative offices
- Establishing firm spending limits for each budget center
- Starting and completing the budget process earlier
- Making office equipment more theft-proof
- Cutting back on repairs
- Eliminating professional interior decorating for new buildings
- Closing buildings at nights and over week-ends
- Modifying campus grounds-keeping to eliminate costly areas of maintenance
- Reducing printing costs
- Cutting back on office supplies
- Reducing number of telephones
- Modifying purchasing procedures to improve competitive bidding
- Cutting back on purchase of new equipment

INCREASING RESOURCES

- Raising tuition
- Improving investment of cash balances
- Investing endowment in high-yield securities
- Increasing gift solicitation from alumni, trustees, parents, friends, and corporations
- Selling non-productive properties
- Raising rents in university property
- Renting space to other organizations
- Increasing room charges
- Increasing overhead charges
- Obtaining state aid for medical and dental education
- Charging higher fees in clinics
- Intensifying recruitment of students
- Renegotiating leases

CONTROLLING EXPENSES (cont'd)

- Cutting down on rental equipment
- Changing to a different computer
- Improving space utilization
- Eliminating rented space
- Reducing new construction
- Closing graduate residence buildings
- Updating and correcting mailing lists

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